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ABSTRACT

The conventional labor market model is used to explain wage determination in considering the changes in teachers' salaries relative to those of other occupations and to the cost-of-living index. The study was limited by the lack of suitable data on teachers' salaries over an extended period of time. The data studied break down of teacher salaries by year, educational level, and sex. The author shows a series of fluctuations in relative salaries that leave secondary school teachers in 1975 at the same level as they had enjoyed in 1951 and elementary teachers at the level of 1957-58. On the other hand, median salaries are shown to have exceeded the rise in cost of living. The effect of supply and demand in the teacher work force is also demonstrated to affect teacher salaries. Statistics on previous periods of declining enrollment indicate a very slight drop in the total number of teachers and a slight decline in salaries, followed by significant increases when teacher demand increased. (Author/WD)

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ELEMENTARY AND SECONDARY SCHOOL TEACHERS' SALARIES IN ONTARIO, 1900 TO 1975

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MARCH, 1978

COMMISSION ON DECLINING SCHOOL ENROLMENTS IN ONTARIO (CODE)

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I. Introduction

The purpose of this paper is best expressed by reference to excerpts from the Commissioner's letter to the author. This indicated that

> "The study will be mainly a quantitative recapitulation of the behaviour of teachers' earnings and deal with changing factors in the teachers' labour market in Ontario."

Moreover, given the special concern of the Commission, the behaviour of teachers' earnings would be related particularly to the "declining numbers of young people of elementary and secondary school age and related changes in the level of demand for services."

The basic questions which have defined the scope of this paper are the following:

1. How have teachers' salaries changed relative to those of other occupations?

2. How have teachers' salaries changed relative to the cost of living?

3. How have the salaries of specific groups of teachers changed relative to each other?

4. What apparent association is there between these various salary changes and other major variables in the school system, notably the numbers of teachers and pupils?

The next section outlines an analytical framework for an examination of relative earnings by occupation. This is followed by a short section on data sources and problems, which introduces the substance of the paper - the presentation of empirical results.

II. Analytical Framework

The framework around which this paper is organized is the conventional labour market model used to explain wage determination. This is illustrated in Figure 1. The demand for the labour services of teachers (shown in market A initially as D_1D_1) is a derived demand; that is, it is dependent on the demand for educational services or instruction and on the particular combination of productive factors used to provide such instruction. The demand curve for teachers is assumed to have the usual downward slope since more teachers would be hired at lower wages to provide more specialized instruction and in smaller classes.

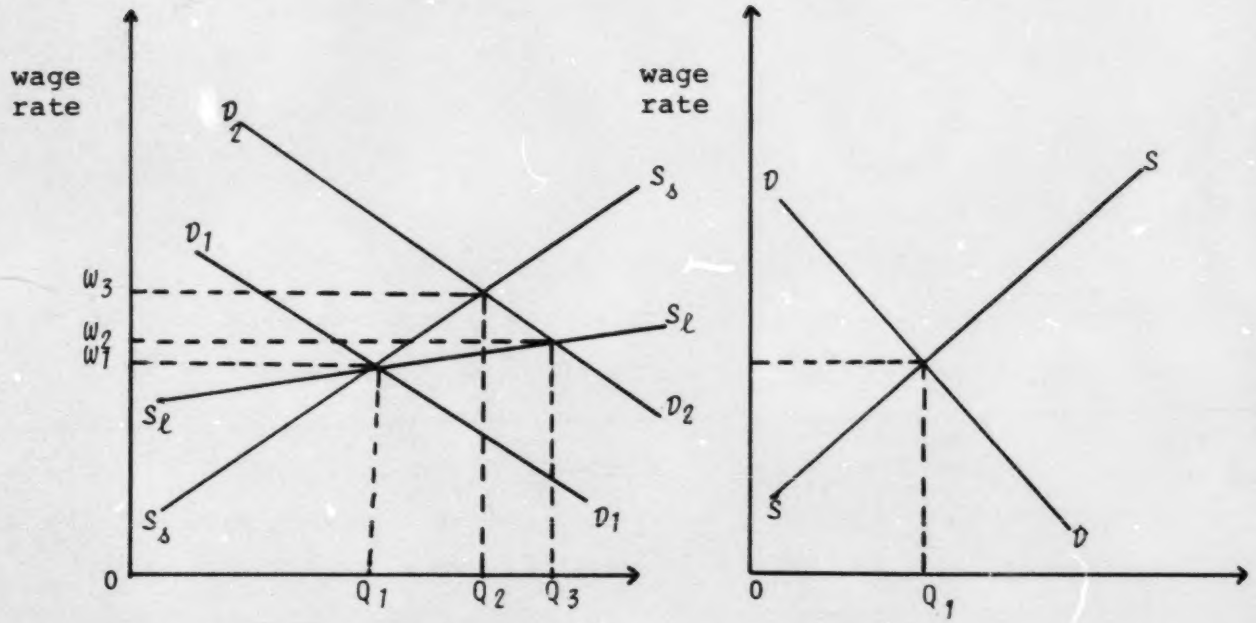
The supply side requires a more complex treatment. The short-run period is the time within which the number of teachers is fixed. This is quite short in the case of teachers since the period for specific teacher-training is short - usually one, or perhaps two years - by comparison with the training period for other professionals such as accountants, lawyers, or nurses. This is because teacher training follows a longer period of general education in arts and sciences, whether at the secondary or post-secondary level. The short-run labour supply (S_sS_s) therefore depends mainly on the labour force participation rate of graduates from the teacher education institutions.

The long-run labour supply (S_1S_1) is determined by changes in the quantity and quality of teachers, and is more elastic or responsive to changes in teachers' salaries than is the short-run supply because persons may readily move through the teacher training period from previous full-time study or from other occupations.

The interaction of supply and demand determines the equilibrium

Figure 1

The Labour Markets for Teachers and Other Occupations



Market A

Teachers

Market B

Other Labour

wage rate or salary, as illustrated in market A of Figure 1, at OW_1 and the number of teachers employed as OQ_1. Assume that initially teachers and "other labour" (representing the rest of the labour force) have the same wage rate. Should there be no other changes in the economy but an increase in demand for teachers' services, represented by a shift to D_2D_2, the wage rate would rise to OW_3 and there would be an increase in the number of teachers employed to OQ_2 since the short-run response is determined by the short-run supply.

In the longer run, however, persons in other occupations (from market B), young people planning occupational careers and persons returning to the labour force, will be induced by the relatively higher wages for teachers to enter that labour market. This would be represented by a series of outward shifts in the short-run supply, with equilibria along D_2D_2, until equilibrium was reached at the lower wage or salary level of OW_2 and higher employment at OQ_3. At the same time there would be an increase in the wage rate in market B as the supply in that market decreased due to the factors mentioned above. Although the real wage in market A falls to OW_2 while the real wage in market B rises, the money wage in each would likely rise in inflationary times, but such an increase in market A would occur at a slower rate than that of inflation.

If the long-run supply of labour in the teachers' market is quite elastic, one would expect that a continuing increase in the demand for teachers' labour due to increased pupil enrolments would result in a large increase in the number of teachers employed over the long run but a small long-run increase in their relative wages. Conversely, the less elastic is the long-run supply of teachers the greater would be the increase in their

salaries and the less the increase in the number of teachers employed over the long run.

III. Data Sources and Problems

The major problem encountered in this study was the lack of suitable data on either teachers' salaries or earnings in Ontario over a long enough period to make reasonable observations. This distinction between salaries and earnings is important. Salaries are the counterpart of wage rates in the more general labour market studies; that is, they represent the basic compensation for labour services but do not include other payments from the same employer or supplementary income received through other labour force activity such as self-employment or a second job. Earnings represent the actual compensation for all labour services provided during a specific period. In neither case, however, are fringe benefits included. Salaries can be reported by either the employer or the employee but only the employee can accurately report earnings to the extent that additional labour income is included.

Whether one should use wage and salary data or earnings data depends on the purpose of the study. For comparisons of teachers with other occupations, earnings data are more appropriate because these reflect the effect of unemployment as well as the supplementary labour income which can be of significant proportions for non-professional occupations.[1]

Census Data. The only comprehensive source of earnings data for detailed occupations is the decennial population census, but there are two important short-comings with this source. First,

[1] See for example Table 9 which shows that gross payroll exceeds basic pay by almost 22 percent in an average of ten industries.

intra-decade changes in earnings are not observed; and second, each decennial census since 1931 has employed a new classification of occupations. Some changes have been small but there have also been fundamental revisions in the occupational classifications. This problem is particularly severe between the 1961 and 1971 censuses. Of the 486 occupation classes in the 1971 census, only 9 classes are precisely comparable with those in the 1961 census.[2] Regrettably, comparisons across the censuses are sometimes made without recognizing this problem because those concerned assume that no change in the name of the occupational class means that the occupation has been defined in the same way in each census.

A recent study by Meltz and Stager attempted to overcome this problem in the 1961 and 1971 censuses, at least in part, by building on earlier work by Meltz which presented comparable occupational classes in the 1931 to 1961 censuses.[3] School teachers are shown to be comparable from 1931 to 1961, but not in the 1971 census because a number of detailed occupational titles were added to or subtracted from this class. Since elementary and secondary teachers dominate the class, their earnings have been included for 1971 in the inter-decade comparisons in order to update the earlier comparisons but this probably underestimates the true value for 1971. Further problems with the use of census data are also discussed when the tabulated data are examined.

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[2]The nine occupations are: postmasters, dentists, nurses-in-training, optometrists, service station attendants, commissioned officers, other ranks-armed forces, bartenders, bus drivers.

[3]Meltz, Noah and David Stager, The Occupational Structure of Earnings in Canada, 1931-1975; and Noah Meltz, Manpower in Canada, 1931-1961.

Taxation Statistics. Revenue Canada annually publishes data on reported incomes received by individuals from all sources. These data are published by occupation, but the occupation-by-province tables do not disaggregate total income into its various sources. Hence total income, rather than employment income, by occupation must be used. Moreover, the occupation classes, particularly for employees, are highly aggregative with the result that all "teachers and professors" are grouped in the single occupational category of that title. These occupations are also based on self-described responses appearing in the tax returns.

The major advantage of the Taxation Statistics is that it does provide annual data which offer a general impression of the trend in incomes for particular groups. It also provides annual data since 1946 for "all employees" which are used in this paper as a standard for determining how teachers; salaries have behaved relative to the rest of the labour force.

Statistics Canada Education Division. Statistics Canada regularly collects and publishes data on teachers' salaries,[4] but there are a number of basic problems with this source. Data on teachers' salaries have been collected since 1938, but the teacher categories have been fundamentally altered at least three times, making it impossible to construct a continuous series. This is most serious between 1967-68 and 1973-74 when the distinction between public and separate schools appears to have been dropped and salaries are now reported for the combined categories as "elementary schools."

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[4] Statistics Canada, Salaries and Qualifications of Teachers in Public Elementary and Secondary Schools (no. 81-202).

There are also years for which data are not published. No publications on teachers' salaries were issued for 1950-51, 1951-52, and 1955-56. Data on Ontario teachers' salaries were not available for inclusion in the publications of 1968-69 to 1972-73.[5] Some difficulties also arise because average salaries are used in some tabulations while median salaries are used in others.

IV. Empirical Findings

A. Earnings of Teachers and Other Occupations

Census Data. The behaviour of teachers' earnings relative to those for the total Ontario labour force over the period 1931 to 1971 are shown in Table 1. As noted in the preceding section, the data on teachers are strictly comparable from 1931 to 1961, but the data for 1971 probably underestimate slightly the true value for earnings due to a change in the grouping of occupational titles.

The earnings data for "all occupations" in fact are for wage and salary earners alone because self-employment income was not included until the 1961 census.

Earnings for male teachers relative to those for the total male labour force start from a high level (of 201 percent) in 1931, decline by 20 percent to 1941 and by a further 20 percent to 1951. The pattern is then reversed with a 20 percent increase in relative earnings to 1961, followed by a 15 percent decline to 1971. This path can be seen clearly in Figure 2.

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[5] A comparison of median salary data drawn from Statistics Canada (no. 81-202) and from annual reports of the Ontario Minister of Education indicates that it is not possible to reconcile data from these two sources, and hence that this critical five-year gap cannot readily be overcome.

Table 1

Average Earnings[a] of School Teachers, by Sex, Ontario, 1931-1971

	1931	1941	1951[c]	1961	1971
Average Earnings					
Teachers, school[b]					
Males	$2023	$1801	$3135	$6228	$9567
Females	1191	1092	2072	4015	6147
Total	1382	1297	2398	4733	7275
All occupations					
Males	$1004	$1112	$2414	$3984	$7213
Females	636	574	1392	2119	3328
Total	936	996	2172	3445	5772
Relative Earnings[d]					
Teachers					
Males	201	162	130	156	133
Females	187	190	149	189	185
Total	148	130	110	137	126
Professional and technical (Canada)	168	149	125	140	n.a.

[a] employment income

[b] in 1971 includes elementary and kindergarten teachers (class 2731) and secondary school teachers (class 2733); for prior years data are based on 1951 classification

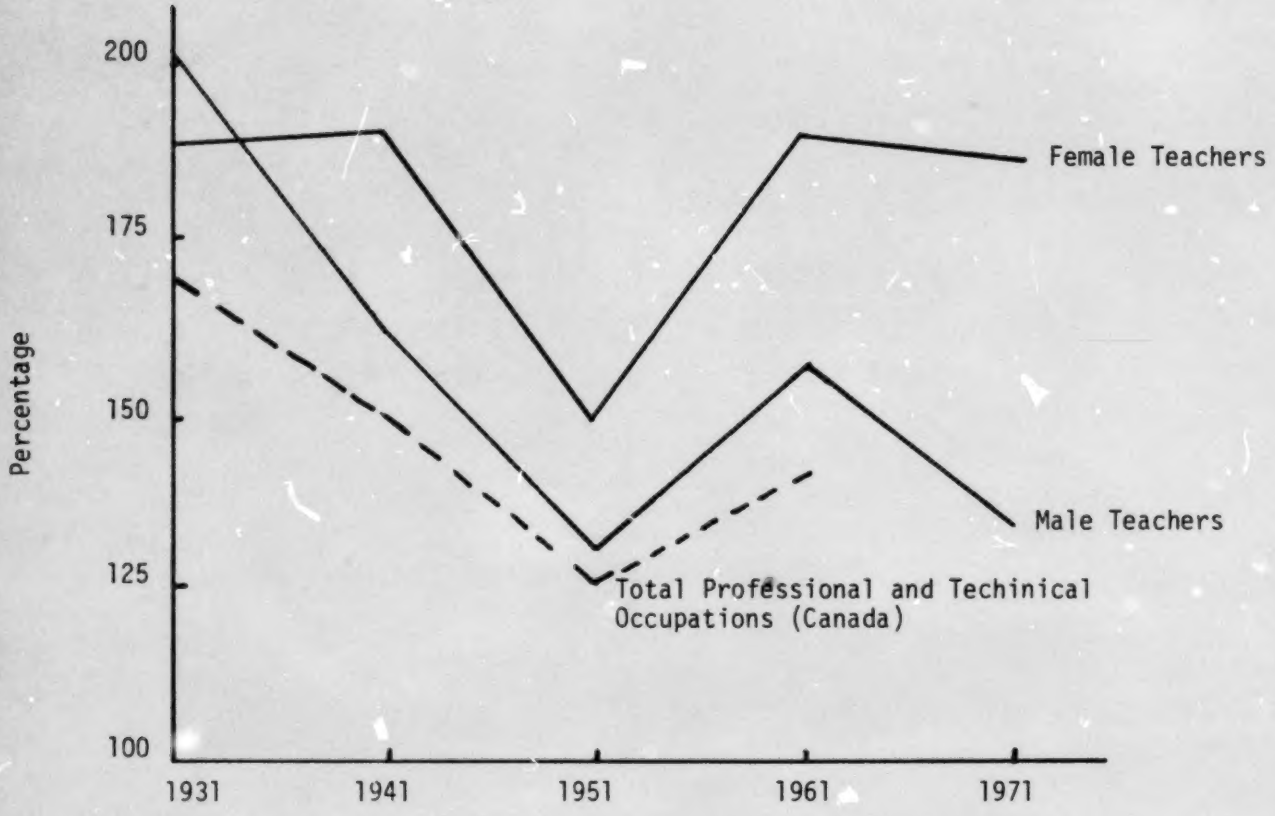
[c] median values are used in 1951 because means not reported

[d] average earnings as a percentage of earnings in all occupations

Sources: Census of Canada: 1931 Vol. V, Table 28; 1941 Vol. VI, Table 6; 1951 Vol. V, Table 21; 1961 Vol. III (3-7), Table 21; 1971 Vol. III (3-6), Table 17.

Figure 2

Average Earnings of School Teachers in Ontario as a percentage of average earnings for All Occupations, by sex, 1931 to 1971.



Source: Table 1

The relative earnings for female teachers behaved somewhat differently: there was an almost negligible increase from 1931 to 1941; about the same 20 percent decrease that males experienced from 1941 to 1951; an increase of 27 percent in the 1951 to 1961 period; and only a very slight decline during 1961 to 1971, with the result that female teachers were approximately at the same relative level from which they began in 1931.

There results for both males and females closely resemble the patterns reported by Meltz and Stager for the national level for 1931 to 1961.[6] Table 2 shows that the major difference is that the relative earnings for Ontario teachers have always been higher than the relative earnings for the total of Canadian teachers, although this difference narrowed sharply from 1931 to 1951.

The general pattern of a decline followed by an increase in teachers' relative earnings roughly parallels the pattern shown in Table 1 for the broad occupation group of Professional and Technical at the Canada level, with the exception that teachers' earnings showed a stronger recovery in the 1951-1961 decade.

Taxation Statistics. Since the census data are limited to the five observation points of the decennial census, it is necessary to turn to other data sources to observe the behaviour of earnings in the intercensal years. Data on total incomes for certain broad occupational groups are available annually since 1946 in the taxation statistics. These are shown in Table 3.

The advantage of annual data is somewhat offset by the disadvantage of aggregation of teachers'and professors' incomes and of incomes for males and females. One can roughly estimate

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[6]Meltz, Noah and David Stager, op. cit.

Table 2

Relative Earnings of School Teachers
in Ontario and Canada, 1931-1961[a]

Males	1931	1941	1951	1961
Ontario	201	162	130	156
Canada	170	143	125	151
Females				
Ontario	187	190	149	189
Canada	164	162	136	170
Total				
Ontario	148	130	110	137
Canada	126	111	101	127

[a]1971 in not included because calculations were not possible at the Canada level

Sources: Table 1; and Noah Meltz and David Stager, The Occupational Structure of Earnings in Canada, 1931-1975.

TABLE 3

Incomes of Taxable Teachers and Professors and All Employees, Ontario, 1946 to 1975

Year	Teachers and Professors[a]		All Employees Average Income[b]	Teachers & Professors Relative Income[d]
	Number of Taxpayers[c]	Average Income[b]		
1946	26,210	$1915	$1885	102
1947	26,290	2235	2165	103
1948	28,920	2420	2346	103
1949	19,900	2750	2610	105
1950	23,770	2822	2708	104
1951	23,520	3214	3064	105
1952	26,370	3345	3031	110
1953	27,520	3475	3207	108
1954	30,890	3539	3273	108
1955	32,900	3786	3373	112
1956	36,142	3875	3534	110
1957	37,541	3997	3716	108
1958	44,084	4337	3883	112
1959	60,966	4356	3996	109
1960	50,509	4910	4160	118
1961	55,183	4995	4290	116
1962	61,378	5142	4398	117
1963	61,932	5377	4509	119
1964	70,582	5523	4723	117
1965	79,085	5859	4935	119
1966	89,423	6202	5236	118
1967	94,948	6824	5528	123
1968	107,850	7595	5945	128
1969	114,066	8165	6568	124
1970	122,850	8911	6804	131
1971	125,044	9829	7592	129
1972	118,660	10,633	8233	129
1973	122,290	11,411	8930	128
1974	126,647	12,991	10,055	129
1975	111,007	15,118	12,284	123

a classified as employees of Educational Institutions in reports for 1946 to 1955

b total income from all sources

c number of taxable returns

d incomes of teachers and professors as percentage of average incomes for All Employees

Source: Taxation Statistics, published annually by Revenue Canada.

the distortions due to these aggregations by reference to Table 4. This shows that professors were only 4 to 5 percent of the total group during the first ten years of the taxation statistics, but reached 10 percent by the early 1970s. Census data for 1971 show that professors' average earnings exceed those for school teachers by about 55 percent. This differential together with the proportion of professors in the total group suggests that this upward bias may be significant, particularly in the past 10 years.

Another upward bias lies in the aggregation of male and female incomes. Table 1 showed that male earnings exceeded female earnings for teachers by roughly 50 percent during the 1951 to 1971 period; and Table 4 shows a slight decline in the percentage of female teachers since 1951. Extrapolation of this rate of decline suggests that the proportion of female teachers dropped from about 70 to 66 percent over the period covered by taxation data. This effect is of about the same magnitude as the previous bias; the combined effect of the two upward biases is enough to reduce substantially the relative earnings shown in the Table 3 data.[7] Rather, the usefulness of these data is to identify three points which mark fairly abrupt changes in teachers' relative incomes. These are 1952, 1960, and 1968. In 1952, relative incomes rose from 105 to 110 and then remained in the range of 108-112 until 1959; in 1960 they rose again to remain in a range of 116-119 until 1967-68 when they rose to remain in a range of 128-131 (except in 1969). The drop to 123 in 1975

[7] The bias can be estimated only for these factors taken separately. For example, including professors results in an upward bias of about 5 percent in 1971, and the increased proportion of males results in a bias of about 3 percent over the period 1951 to 1971.

Labour Force in Teaching, by Sex, Ontario, 1931-1971

	1931	1941	1951	1961	1971
Teachers, school[a]					
Males	5,442	7,080	9,221	17,565	33,375
Females	18,217	17,457	20,801	36,582	67,855
Total	23,659	24,537	30,022	54,147	101,230
percentage female	77	71	69	68	67
Professors, total[b]	687	1051	1424	3052	10,605
Teachers and professors	24,346	25,588	31,446	57,199	111,835
percentage professors	2.8	4.1	4.5	5.3	9.5
All occupations ('000)					
Males	1094.0	1137.6	1438.1	1700.6	2270.5
Females	249.1	314.5	444.4	692.4	1404.4
Total	1343.1	1452.0	1882.5	2393.0	3674.9
Teachers as percentage of all occupations					
Males	0.5	0.6	0.6	1.0	1.5
Females	7.3	5.5	4.7	5.3	4.8
Total	1.8	1.7	1.6	2.3	2.8

a in 1971 includes elementary and kindergarden teachers (class 2731) and secondary school teachers (class 2733); for prior years data are based on 1951 classification

b in 1971 data are for university teachers (class 2711); for prior years data are based on 1951 classification

Sources: Shirley Green, Occupational Trends in Ontario, Toronto: Ontario Department of Labour, 1967; and 1971 Census, Vol. III (3-6), Table 17.

may be the beginning of another such plateau.

Other Sources. The problems of infrequent observations, non-comparability and aggregation of data lead one to look for other sources on teachers' salaries or earnings which provide data separately for elementary and secondary teachers and by sex. Data from two such sources are combined in Table 5 to construct a series that goes back through selected years from 1955 to 1901. Data for the earliest years are from the Hope Commission Report; although this report does not specify its source these data are likely drawn from the annual reports of the Ontario Minister of Education.

There are few continuous series of data on occupational wage rates back to 1900 and thus it is difficult to compare the growth in teachers' salaries with those in other occupations. Table 6 does, however, compare the growth in public school teachers' salaries with the increase in the average wage rate for selected main industries in Canada. This shows that average salaries for male public school teachers rose more quickly than for female teachers from 1901 to 1928; and that both groups of teachers experienced faster salary growth than is seen in the general level of wages in this period. Following the Depression, however, the general wage rate increased more than did teachers' salaries. Through the 1940s, teachers' salaries increased at approximately the same rate as the general wage level. (Note that Table 6 compared growth rates and not relative levels of salaries.)

Table 5 also shows that while public school teachers' salaries increased by 460 percent for females and 490 percent for males during 1901 to 1947, the average salary for high school teachers rose by just over 200 percent.

TABLE 5

Average salaries of teachers, by type of school and sex, Ontario, selected years, 1901 to 1955

	Public Schools			Separate Schools			Secondary Schools				
Year	Males	Females	Total	Males	Females	Total	Continuation	High Schools	Vocational	Total	All Teachers
1901-02	$ 421	$ 306	$	$ 372	$ 215	$	$	$ 922	$	$	$
1904-05	485	335		384	234			967			
1907-08	596	420		400	270		674	1105			
1909-10	660	449	485			321				1114	522
1910-11	711	483		527	325		801	1259			
1913-14	838	575		597	385		938	1409			
1916-17	957	626		654	410		949	1448			
1919-20	1348	818	873	767	497	513	1139	1828	2576	1806	934
1922-23	1644	1117		902	708		1603	2262	2603		
1925-26	1645	1142	1213	911	719	732	1545	2376	2567	2287	1312
1928-29	1703	1155	1238	908	748	759	1570	2438	2576	2346	1361
1931-32	1689	1178		916	797		1577	2515	2578		
1932-33	1665	1150	1242			764				2338	1390
1934-35	1382	1061		838	729		1242	2191	2371		
1937-38	1393	1049	1131	875	735	750	1243	2197	2458	2162	1288
1940-41	1482	1109	1200	971	758	784	1280	2229	2511	2179	1347
1943-44	1930	1295		1091	861		1600	2396	2674		
1944-45	2023	1355		1113	908		1713	2464	2747		
1945-46	2088	1457		1233	971		1842	2563	2891		
1946-47	2124	1538	1656	1315	1014	1049	1961	2632	2945	2640	1777
1947-48	2353	1794	1915	1480	1123	1162	2223	2866	3204	2915	2024
1948-49	2538	1983	2109			1288				3093	2199
1949-50	2700	2129	2260			1408				3319	2365
1950-51	2803	2267	2395			1477				3428	2485
1951-52	3152	2599	2733			1555				3916	2812
1952-53	3465	2832	2984			1732				4151	3035
1953-54	3632	2954	3117			1966				4481	3217
1954-55	3761	3100	3259			2163				4634	3363

Sources: Royal Commission on Education in Ontario, Report, 1950, Table 1, p. 621; and Canadian Teachers Federation, Trends in the Economic Status of Teachers, 1910-1955, Tables 1.21 to 1.26.

TABLE 6

Index of Average Salaries for Ontario School Teachers Compared With Index of General Wage Rates, Canada, 901 to 1949

Year	General Wage Index[a] (1949=100)	Public School Teachers	
		Female	Male
1901	18.6	14.4	15.6
1904	20.7	15.7	18.0
1907	22.6	19.7	22.1
1909	23.6	21.1	24.4
1910	24.4	22.7	26.3
1913	25.5	27.0	31.0
1916	27.8	29.4	35.4
1919	44.0	38.4	49.9
1922	44.5	52.5	60.9
1925	45.8	53.6	60.9
1928	47.7	54.3	63.1
1931	47.2	55.3	62.6
1932	43.8	54.0	61.7
1934	40.0	49.8	51.2
1937	47.3	49.3	51.6
1940	50.8	52.1	54.9
1943	65.3	60.8	71.5
1944	67.3	68.4	74.9
1945	69.3	68.4	77.3
1946	75.9	72.2	78.7
1947	84.9	84.3	87.1
1948	95.7	93.1	94.0
1949	100.0	100.0	100.0

[a] average wage rate for selected main industries in Canada

Sources: Historical Statistics of Canada, D_1, p. 84; and Table 5.

Statistics Canada Data. The data on teachers' salaries by type of school and by sex were published as median values (rather than means) since the earlier 1940s. Since the means exceed the medians by roughly 10 percent it is not possible to link the data series in Tables 5 and 7. Also, as noted earlier, the data for Ontario were not published for the late 1960s and early 1970s. The data in Table 7, however, represent possibly the best set of detailed comparable statistics on teachers' salaries for the period 1944 to 1968.

The data in Table 7 are used to compare the median salaries of teachers with the average total incomes for all employees in Ontario for the postwar period. These relative salary calculations are presented in Table 8 and are portrayed graphically in Figure 3. From these sources it can be seen that in the immediate postwar period male teachers' salaries declined relative to the rest of the labour force while salaries for female teachers increased slightly. Then in 1948-49 there began a long run increase in teachers' relative salaries that continued until 1959-60 for secondary teachers, for another year or two for public elementary teachers and female separate school teachers.

The decline in relative salaries that began in 1960-61 for secondary teachers was quite pronounced (from 171 to 144, or 16 percent, for males) and continued to 1966-67. Public elementary teachers experienced the same pattern although their decline in relative salaries occurred later and was less pronounced.

Teachers in all categories enjoyed a very sharp increase in relative salaries in 1967-68, and then follows the unfortunate gap in the data. While there may have been a further increase during this interval, the data for the early 1970s indicate that

TABLE 7

Median Salaries, Public and Separate Elementary and Secondary School Teachers and Principals, Ontario, 1944 to 1975

	Public			Separate			Secondary			All Teachers
Year	Males	Females	Total	Males	Females	Total	Males	Females	Total	Total
1944-45	$1746	$1122	$1176	$1043	$ 879	$ 892	$2607	$1992	$2308	$1301
1945-46	1822	1217	1258	1101	964	979	2725	2022	2374	1413
1946-47	1953	1415	1479	1305	1044	1083	2782	2225	2524	1514
1947-48	2205	1677	1720	1493	1182	1202	3002	2517	2793	1797
1948-49	2328	1814	1885	1676	1291	1323	3205	2722	2992	1974
1949-50	2543	1979	2001	1797	1387	1426	3382	2941	3196	2109
1950-51	"	"	"	"	"	"	"	"	"	2217
1951-52	"	"	"	"	"	"	"	"	"	2545
1952-53	3132	2549	2655	2196	1797	1813	4390	3907	4201	2771
1953-54	3293	2656	2773	2346	1907	1951	4650	4056	4366	2916
1954-55	3463	2806	2940	2407	2005	2023	4718	4187	4508	3008
1955-56	"	"	"	"	"	"	"	"	"	3236
1956-57	3989	3219	3373	2553	2280	2312	5347	4735	5127	3490
1957-58	4251	3417	3576	2850	2445	2485	5880	5260	5643	3738
1958-59	4544	3670	3828	3089	2672	2713	6442	5769	6177	4026
1959-60	4732	3902	4050	3195	2923	2949	7103	6410	6839	4289
1960-61	4881	4044	4197	3465	3149	3182	7298	6597	7043	4496
1961-62	4887	4136	4276	3593	3318	3359	7316	6491	7026	4652
1962-63	4911	4206	4377	3696	3470	3504	7194	6404	6929	4804
1963-64	5018	4291	4464	3869	3611	3661	7242	6459	7003	4922
1964-65	5264	4457	4658	4038	3494	3927	7473	6567	7204	5182
1965-66	5527	4745	4915	4466	4141	4191	7792	6787	7478	5489
1966-67	5759	4879	5104	4886	4388	4442	7956	6798	7503	5732
1967-68	7204	6087	6268	6306	5706	5812	9389	8074	8933	6900
1968-69	7749	6249	6549	"	"	"	"	"	"	"
1969-70	"	"	"	"	"	"	"	"	"	"
1970-71	Total Elementary[a]			"	"	"		"		
1971-72	Males	Females	Total	"	"	"				
1972-73	10,500[e]	8,600[e]	8,774[e]	"	"	"			12,711	9,828
1973-74	11,501	9,292	9,704	"	"	"	14,414	12,251	13,734	10,727
1974-75	13,255	10,631	11,015	"	"	"	16,327	13,799	15,527	12,423
1975-76	14,521	11,521	12,121	"	"	"	17,921	15,221	17,121	13,521

[e] estimated

" not available

[a] includes public and separate school teachers

Sources: Statistics Canada, Salaries and Qualifications of Teachers in Public Elementary and Secondary Schools, (no. 81-202), published annually (biennially since 1972, and not in 1950-51, 1951-52, 1955-56).

TABLE 8

Median Salaries of School Teachers as percentage of All Employees Average Income, Ontario, 1945 to 1975

Year[b]	All Employees Average Income[a]	Public		Separate		Secondary	
		Males	Females	Males	Females	Males	Females
1945-46	$1885	97	65	58	51	145	107
1946-47	2165	90	65	60	48	128	103
1947-48	2346	94	71	64	50	128	107
1948-49	2610	89	70	64	49	123	104
1949-50	2708	94	73	66	51	125	109
1950-51	3054	"	"	"	"	"	"
1951-52	3031	"	"	"	"	"	"
1952-53	3207	98	79	69	56	137	122
1953-54	3273	101	81	72	58	139	124
1954-55	3373	103	83	71	59	140	124
1955-56	3534	"	"	"	"	"	"
1956-57	3716	107	87	69	61	143	127
1957-58	3883	109	88	73	63	151	135
1958-59	3996	114	92	77	67	161	144
1959-60	4160	114	94	77	70	171	154
1960-61	4290	114	94	81	73	170	153
1961-62	4398	111	94	82	75	166	148
1962-63	4509	109	93	82	77	160	143
1963-64	4723	106	91	82	76	153	137
1964-65	4935	107	90	82	71	151	133
1965-66	5236	106	91	85	79	149	130
1966-67	5528	104	88	88	79	144	123
1967-68	5945	121	102	106	96	158	136
1968-69	6568	118	95	"	"	"	"
1969-70	6804	"	"	"	"	"	"
1970-71	7592	Total Elementary[c]		"	"	"	"
1971-72	8233	Males	Females	"	"	"	"
1972-73	8930	118	96	"	"	"	"
1973-74	10,005	114	92	"	"	143	112
1974-75	12,284	108	87	""	"	133	112

[a] average total income for All Employees (taxable returns only) from Taxation Statistics

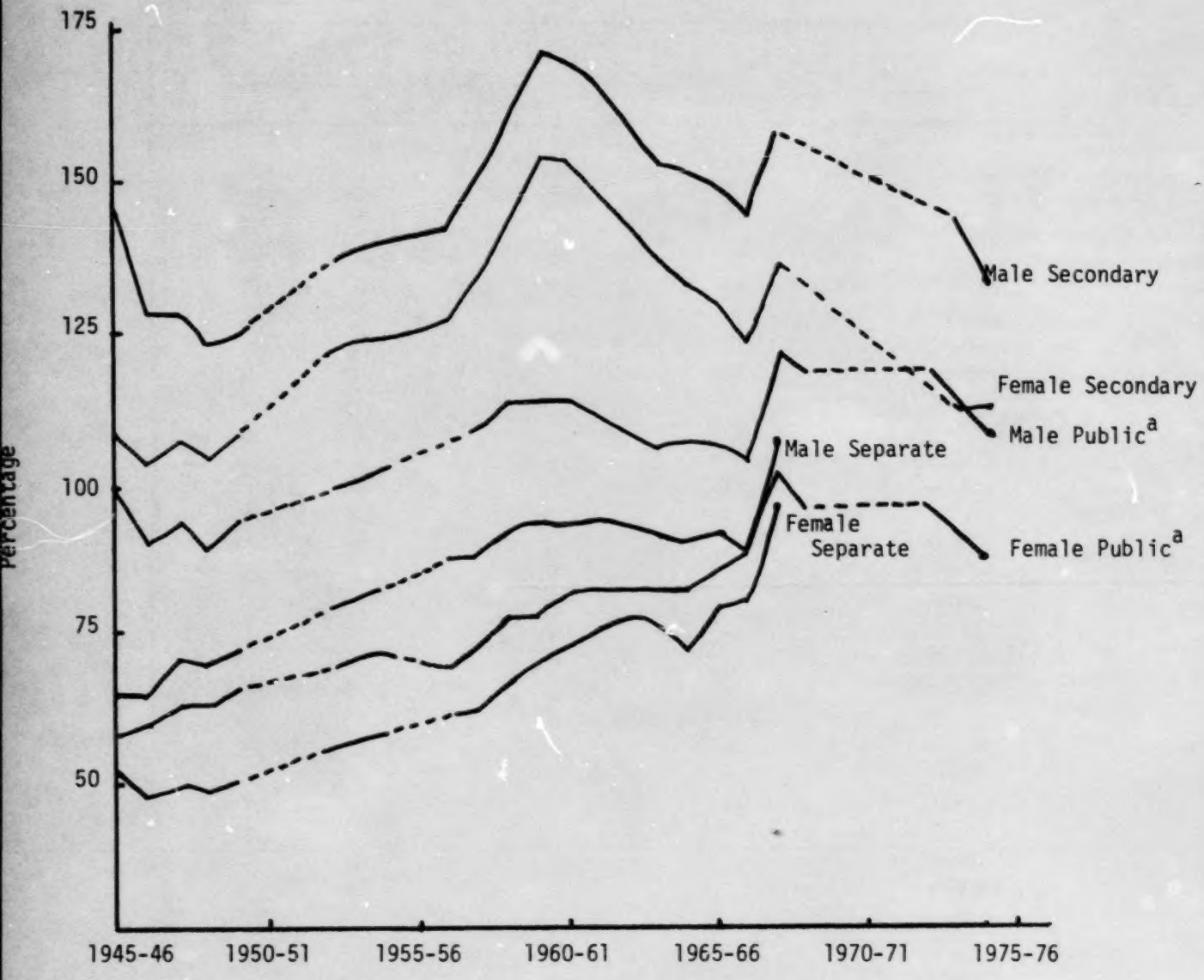
[b] Taxation data are for calendar year beginning at mid-point of school year

[c] includes both public and separate school teachers

Source: Tables 3 and 7

Figure 3 Ontario School Teachers Salaries

Median salaries as a percentage of average income for All Employees, Ontario, 1945 to 1975.



[a]Total Elementary from 1972-1973

Source: Table 8

relative salaries had fallen again by 1973-74 and declined further to 1975.

The overall effect of these fluctuations was to leave secondary school teachers in 1975 at about the same relative salaries they had in 1951 at the beginning of the prosperous period. Elementary school teachers fared somewhat better: they were in 1975 at the same relative salaries received in 1957-58, while separate school teachers may have been set back no further than 1966-67.

Fringe Benefits. In making comparisons of occupational earnings or salaries one encounters the problem of possible differences in fringe benefits, or even in the particular wage categories that are reported in the data. Such differences are illustrated in Table 9 where the total payroll and fringe benefits for teachers are compared with similar data for the average of ten industries at the Canada level. Note particularly that gross payroll exceeds basic pay by almost 22 percent in the ten-industry average while no such distinction is made for various components of the teachers' salary. Although relative magnitudes of employers' contributions are quite similar, representing 3 percent of gross payroll for teachers and 8.7 percent for the ten-industry group, there is an important difference in the composition of employers' contributions: teachers receive a substantial portion through their pension plan while in the other group a larger share must go to workmen's compensation and unemployment insurance.

B. Teachers' Salaries and the Cost of Living

This brief section reviews the relationship between changes in the cost-of-living (the Consumer Price Index) and changes in teachers' salaries during the postwar period. These changes are shown in Figure 4. Female public elementary teachers and male secondary teachers are shown because they constitute the largest

TABLE 9

Total Payroll and Fringe Benefits, Ontario Full-Time Elementary and Secondary School Teachers (1974) and Canadian Ten-Industry Average (1976)

Item	Average Amounts		Percentage	
	Teachers[a]	10 Industries	Teachers	10 Industries
Basic Pay (regular work)	b	$10,845		75.6
Other payments for time worked	b	747		5.2
Paid absence	b	1,359		9.5
Other direct payments	b	245		1.7
Gross payroll	$12,155	$13,196	92.5	92.0
Employer Contributions				
Workmen's Compensation	15	159	0.1	1.1
Unemployment Insurance	117	175	0.9	1.2
Canada Pension Plan	108	130	0.8	0.9
Private pension plans	676	477	5.2	3.3
Life and health insur.	58	187	0.4	1.4
Other plans	5	24	0.0	0.1
Total employer contrib.	979	1,152	7.5	8.0
Total Compensation	$13,134	14,348	100.0	100.0

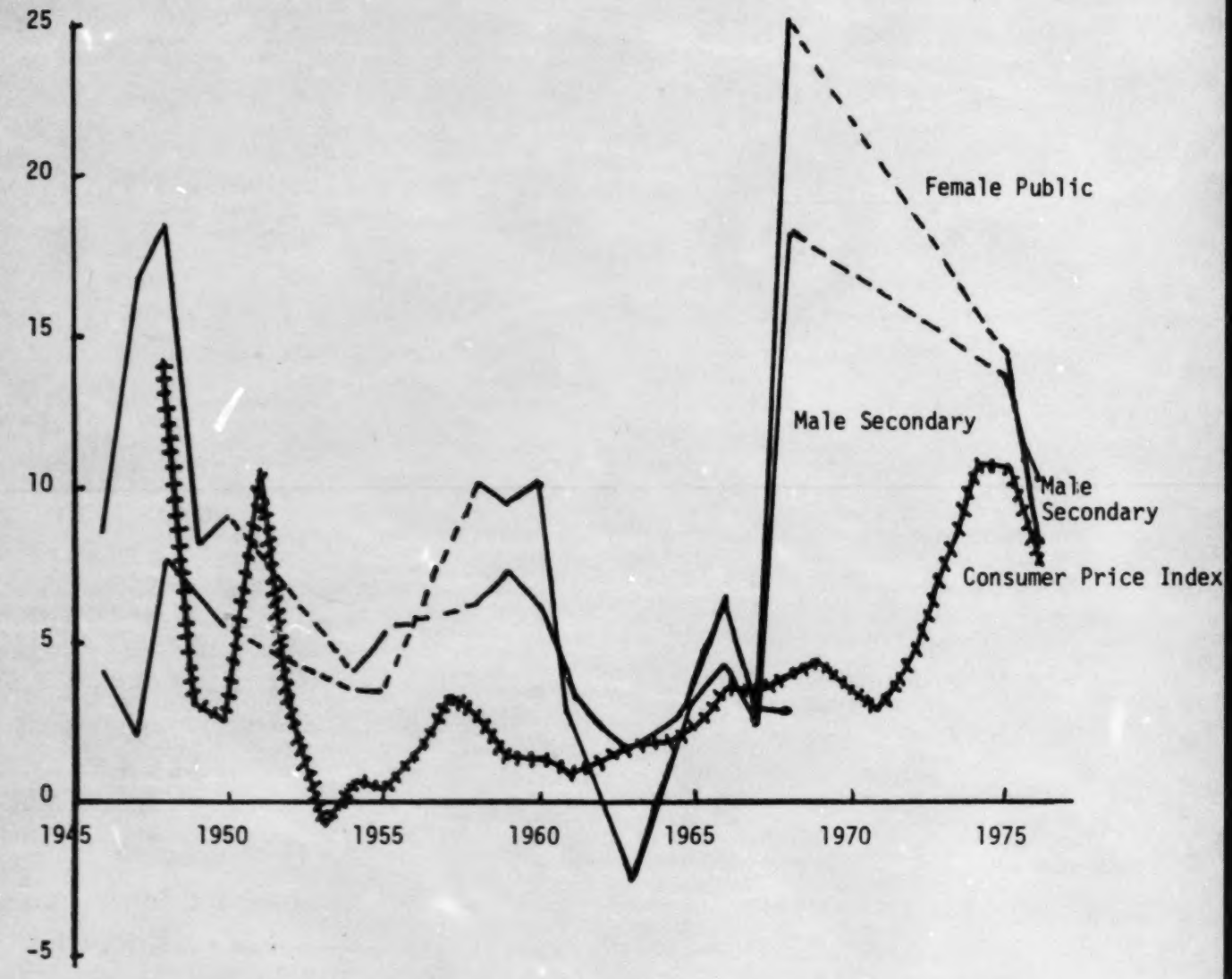
[a] based on 103,000 teachers

[b] amounts for separate items not reported by province. Canada totals showed regular salaries to be 99.2 per cent of gross payroll, with additional 0.8 per cent consisting of separation pay, bonuses, taxable benefits, other payments.

Sources: Statistics Canada, Labour Costs in Canada, (Education, Museums, and Related Institutions), no. 72-616, Table 3; and Labour Costs in Canada, no. 72-618.

Figure 4

Annual percentage changes in teachers salaries,[a] Ontario, and the Consumer Price Index (Canada), 1945 to 1975.



[a]Salary year leads the CPI (calendar) year by six months

Sources: Canada Yearbook for Consumer Price Index; and Table 7.

part of the total teachers. The overall impression is that salaries have moved fairly closely with the CPI, at a somewhat higher level, but with a few important divergences.

Salaries for the female public school teachers have generally increased by more than the CPI increase, which partly explains their improvement relative to the average income of all employees noted in Figure 3. Male secondary school teachers have fared less well by comparison with the CPI, which also partly explains their performance in Figure 3. In 1948 for example, female public school teachers realized an increase in median salary about 4 percentage points greater than the CPI increase, but male secondary teachers were about 6 percentage points below the CPI increase. The absence of salary data for the 1952-53 period is regrettable because one cannot tell whether teachers were economically prejudiced by the 1951 Korean War inflation. Nonetheless, their salary increases were substantially in excess of the CPI increase through the mid- to late 1950s: salary increases were low during the 1953-54 recession; rose in the 1955-56 boom; fell again but with a lag behind the 1957-58 recession to 1960.

Salary increases also lagged the CPI during the early 1960s. In 1962 for example the CPI was rising more quickly but salary increases fell until 1964-65. The increase in the CPI exceeded salary increases again in 1966-67 but from then until at least 1975-76 salary increases have exceeded the rise in the CPI.
In summary, median salaries have increased by more than the CPI since 1945 except in 1950-51 (when the salary determination preceded the abrupt inflation), in 1961-62 to 1963-64 for secondary school teachers, and in 1966-67 for both groups (which was much more than compensated by the 20 to 25 percent increase in 1966-67).

C. Changes in the Structure of Teachers' Salaries

The data plotted in Figure 3 show not only teachers' salaries relative to the average income of all employees but also the changes in the teachers' salary structure. The spread that existed in 1945-46 between male secondary teachers' salaries and those for female separate school teachers was narrowed within a few years by a drop in the relative salaries of male secondary teachers. Then all salaries enjoyed a net increase over the next eight years which returned the structure to approximately what it had been in 1945-46.

Secondary teachers enjoyed greater percentage increases than did the elementary school teachers from 1956-57 to 1959-60, and then smaller percentage increases until 1966-67. At this point male secondary teachers' salaries were about 80 percent greater than salaries of female separate school teachers, whereas the difference had been about 140 percent in 1948-49 and about 125 percent in 1957-58. By 1974-75 the difference between the salaries of male secondary school teachers and female elementary school teachers was just over 50 percent.

D. Changes in Teachers' Salaries and Other Variables in the Educational System

Limited time and other resources preclude a formal analysis of the determinants of the changes in teachers' salaries observed in the preceding sections. The alternative is to examine changes in other variables which act on teachers' salaries through the supply or demand sides of the labour market. Consider first the supply of teachers. This requires data on the composition of the teachers' labour force in terms of schooling levels, sex, age (or experience), formal qualifications, geographic location; on the number of new teachers employed each year; and the output

of the teacher education institutions. On the demand side one should look not only at the absolute and relative numbers of pupils in the elementary and secondary schools, but also at the intervening variable between enrolments and teachers, namely the pupil:teacher ratio.

Supply of Teachers

In Table 10 the number of teachers by sex and school category are shown for the postwar period.[8] The important features of these data are the changes in the relative numbers of teachers in the different categories and the rate of change within each category. Changes in the composition of the teaching force can be seen in Table 11. The major shift has been in the proportion of elementary school teachers: this continued at 78 to 80 percent of the total from 1944-45 until 1959-60, and then has declined fairly steadily to 62 percent in 1975-76. Within the elementary school group, separate school teachers increased very gradually from 14 percent to 19 percent a decade ago. The obverse decline in the proportion of public elementary school teachers has occurred almost entirely through the number of female teachers because the proportion of male public elementary teachers has also increased. The relative increase in numbers of secondary teachers has also occurred mainly through the males, which gradually more than doubled their relative numbers from 11 to 26 percent while females increased only from 9 to 12 percent of the total.

The increased proportion of male teachers in both elementary

[8] One would expect that it should be possible to insert the missing data by reference to Ontario Ministry reports but there are minor discrepancies between the numbers reported in the Ontario reports and those reported in Statistics Canada publications.

TABLE 10

Numbers of School Teachers and Principals, by type of school and sex, Ontario 1944 to 1975
(thousands)

	Public			Separate			Elementary			Secondary			Total		
Year	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
1944-45	2.2	12.0	14.1	.3	2.8	3.1	2.5	14.8	17.2	2.3	1.9	4.2	4.8	17.0	21.8
1945-46	2.2	12.1	14.3	.3	2.9	3.2	2.5	15.0	17.5	2.3	2.0	4.3	5.4	16.9	22.4
1946-47	3.0	11.8	14.7	.4	3.0	3.4	3.4	14.8	18.1	2.9	2.0	4.9	6.3	16.7	23.0
1947-48	3.2	11.9	15.1	.4	3.1	3.5	3.6	15.0	18.6	3.1	2.0	5.0	6.7	16.9	23.6
1948-49	3.5	12.0	15.5	.4	3.1	3.5	3.9	15.1	19.0	3.2	2.0	5.2	7.1	17.1	24.2
1949-50	3.7	12.5	16.2	.4	3.3	3.3	4.[illegible]	15.8	19.5	3.3	2.0	5.3	7.4	17.7	25.1
1950-51	"	"	"	"	"	"	"	"		"	"	"	7.9	18.3	26.2
1951-52	"	"	"	"	"	"	"	"		"	"	"	8.5	19.2	27.7
1952-53	4.5	14.2	18.7	.4	3.9	4.3	4.9	18.1	23.0	3.9	2.1	6.1	8.9	20.2	29.1
1953-54	4.8	15.1	19.9	.4	4.2	4.7	5.2	19.3	24.6	4.1	2.2	6.3	9.3	21.5	30.9
1954-55	5.1	16.2	21.3	.5	4.6	5.1	5.6	20.8	26.4	4.3	2.3	6.7	10.0	23.1	33.1
1955-56	"	"	"	"	"	"				"	"	"	10.8	24.7	35.6
1956-57	5.7	18.3	24.0	.7	5.5	6.1	6.4	23.7	30.1	5.3	2.8	8.0	11.6	26.5	38.1
1957-58	6.0	19.1	25.1	.7	5.9	6.6	6.7	25.0	31.7	5.7	3.0	8.7	12.4	28.0	40.4
1958-59	6.4	20.2	26.6	.9	6.5	7.4	7.2	26.7	34.0	6.3	3.4	9.6	13.5	30.1	43.6
1959-60	6.7	20.5	27.2	1.0	6.9	8.0	7.7	27.4	35.1	6.7	3.5	10.2	14.4	30.9	45.4
1960-61	7.2	21.0	28.2	1.1	7.3	8.4	8.3	28.3	36.6	7.5	3.7	11.2	16.3	33.0	49.3
1961-62	7.8	21.1	28.9	1.4	7.8	9.1	9.2	28.9	38.0	8.6	4.3	12.9	18.3	34.1	52.4
1962-63	8.3	21.3	29.6	1.5	8.1	9.7	9.8	29.5	39.3	10.1	4.8	14.9	20.5	35.3	55.8
1963-64	8.6	21.9	30.5	1.9	8.7	10.7	10.6	30.6	41.1	11.7	5.5	17.2	22.9	37.1	60.0
1964-65	9.1	22.4	31.5	2.3	9.4	11.6	11.3	31.8	43.1	13.0	6.2	19.2	25.0	39.1	64.1
1965-66	9.3	23.0	32.3	2.5	10.0	12.5	11.9	33.0	44.9	14.4	6.9	21.3	27.1	41.5	68.6
1966-67	9.4	23.9	33.3	2.8	11.6	14.3	12.1	35.5	47.6	16.8	9.5	26.3	28.9	45.0	73.9
1967-68	10.5	27.3	37.8	3.0	11.9	14.9	13.5	39.2	52.7	17.9	8.7	26.6	31.4	47.9	79.3
1968-69													33.3	51.5	84.8
1969-70													36.2	53.8	89.9
1970-71													37.2	55.8	93.0
1971-72													38.8	53.6	92.5
1972-73							17.3	43.3	60.6	24.3	11.4	35.6	41.5	54.7	96.2
1973-74							18.1	42.0	60.1	23.0	10.1	33.1	41.0	52.1	93.2
1974-75							18.3	41.9	60.2	23.7	10.3	34.0	42.0	52.2	94.2
1975-76							18.7	41.7	60.3	25.0	11.2	36.2	43.7	52.8	96.5

Source: Statistics Canada, Salaries and Qualifications of Teachers in Public Elementary and Secondary Schools, (no. 81-202), various years.

TABLE 11

Composition of the Teachers Labour Force, Ontario, 1944-1975
(numbers in each category as percentage of total teachers)

Year	Total ('000)	Public		Separate		Elementary		Secondary		Total Elementary as % of Total
		M	F	M	F	M	F	M	F	
1944-45	21.8	10	55	1	13	11	68	11	9	79
1945-46	22.4	10	54	1	13	11	67	10	9	78
1946-47	23.0	13	51	2	13	15	64	13	9	79
1947-48	23.6	14	50	2	13	16	63	13	9	79
1948-49	24.2	14	50	2	13	16	63	13	8	79
1949-50	25.1	15	50	2	13	17	63	13	8	80
1950-51	26.2									
1951-52	27.7									
1952-53	29.1	15	49	1	13	16	62	13	7	78
1953-54	30.9	16	49	1	14	17	63	13	7	80
1954-55	33.1	15	49	2	14	17	63	13	7	80
1955-56	35.6									
1956-57	38.1	15	48	2	14	17	62	14	7	79
1957-58	40.4	15	47	2	15	17	62	14	7	79
1958-59	43.6	15	46	2	15	17	61	14	8	78
1959-60	45.4	15	45	2	15	17	60	15	8	77
1960-61	49.3	15	43	2	15	17	58	15	8	75
1961-62	52.4	15	40	3	15	18	55	16	8	73
1962-63	55.8	16	41	3	15	17	52	20	9	69
1963-64	60.0	14	37	3	15	17	52	20	9	69
1964-65	64.1	14	35	4	15	18	50	20	10	68
1965-66	68.5	14	34	4	15	18	49	21	10	67
1966-67	73.9	13	32	4	16	17	48	23	13	65
1967-68	79.3	13	34	4	15	17	49	23	11	66
1968-69	84.8									
1969-70	89.9									
1970-71	93.0									
1971-72	92.5									
1972-73	96.2									
1973-74	93.2					19	45	25	11	64
1974-75	94.2					19	44	25	11	63
1975-76	96.5					19	43	26	12	62

Source: Table 10

and secondary schools has resulted in an increase of the total number of male teachers from 22 percent in 1944-45 (at the end of World War II) to 30 percent (in the post-Korean War period) to 45 percent by 1975-76. That is, male teachers have increased from about one-quarter of the teachers' labour force at the end of the Second World War to almost one-half at the present time. Table 17 indicates that this is about the same relative numbers of male and female teachers that were found in Ontario a century ago.[9]

Brief reference can be made here to the rates of increase in numbers of teachers shown in Figure 5, but these patterns will also be examined later in conjunction with other variables shown in the same Figure.[10] Increases have tended to occur more unevenly in the case of secondary than of elementary teachers. Note the sharp increases in 1946 and in 1960 to 1965 compared with the absolute decline in the early 1970s. Increases in the number of elementary teachers by contrast have generally been in the order of 3 to 8 percent per year until the 1970s.

The sharp increases in numbers of secondary teachers in 1960 to 1965 coincide with a period when relative salaries of secondary teachers declined abruptly. The increased number of young teachers explain at least a part of this drop in median salaries, but this may also have been a period of increased supply of new male teachers due to the high unemployment rate and reduced employment opportunities.

Tables 12, 13 and 14 illustrate changes in the relationship between salary levels and qualifications, experience, and location, for elementary school teachers. In Table 12 one notes that the number of teachers at certificate levels 1 and 0 dropped

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[9] See Table 17, p. 40.

[10] See p. 46.

TABLE 12

Relative Average Salaries of Elementary School Teachers, by Certificate Level, Ontario, Selected Years, 1959 to 1967

Certificate Level:	4 to 7	2 and 3	1	0	Total
	(average salaries as percentage of total)				
Salaries					
1959-60	125	105	85	70	$4012
1963-64	106	103	87	74	4412
1967-68	131	97	84	92	6123
Teachers	(number as percentage of total)				
1959-60	1	80	11	9	30,578 (100%)
1963-64	1	89	10	2	36,279 (100%)
1967-68	12	78	4	5	45,896 (100%)

Source: Cicely Watson, et al, The Elementary Teacher, with data from Statistics Canada (no. 81-202).

TABLE 13

Relative Average Salaries of Elementary School Teachers, by Years of Experience, Ontario, Selected Years, 1959 to 1967

Years of Experience:	< 1	1 - 3	4 - 9	10 - 15	16 - 25	26 +	Total
	(average salaries as percentage of total)						
Salaries							
1959-60	74	84	102	112	117	129	$4012
1963-64	73	82	101	117	122	129	4483
1967-68	75	85	105	118	121	126	6123
Teachers		(percentage of total)					
1959-60	12	26	25	14	13	10	30,578 (100%)
1963-65	10	30	26	13	12	10	36,279
1967-68	12	29	30	12	10	7	45,896

Source: Cicely Watson, et al, The Elementary Teacher, with data from Statistics Canada (no. 81-202).

TABLE 14

Relative Average Salaries of Elementary School Teachers and Principals, by Community Size, Ontario, Selected Years, 1963 to 1967

(average salaries in each category as a percentage of the average salary for the total)

Year	Pop. > 100K	10K to 100K	1K to 10K	Rural Schools (no. of rooms) 6+	2 - 5	1	Total
1963-64	109	103	95	94	82	76	$4,711
1964-65[a]							
1965-66	109	102	93	92	85	78	5,165
1966-67	104	102	97	96	91	86	5,703
1967-68	105	99	91		91		6,578
Teachers in 1965-66:							
Number:	15,862	12,509	5103	5921	3253	1444	44,090
Percentage:	36	28	12	13	7	3	100

[a] data not available

Source: Cicely Watson, et al, The Elementary Teacher, with data from Statistics Canada (no. 81-202).

from 20 to 9 percent while those at levels 4 to 7 increased from 1 to 12 percent in the 1960s. This shift alone would have a major effect on average or median salaries of elementary teachers since the average salary increases by about 50 percent from level 1 to levels 4 to 7 (with the unusual exception of 1963-64).

There was, however, remarkably little change during the 1960s in the distribution of elementary teachers by years of experience. Those with less than 4 years experience and those with 4 to 15 years experience were in each case about 40 percent of the total group from 1959 to 1968.

Table 14 shows the higher average salaries paid to teachers in the larger communities. This is possibly due to the combined effects of being able to afford a higher salary for a teacher of given qualifications and experience as well as being able to attract persons with more of each of these, due to nonmonetary benefits of city life.

Another approach to the effect of teachers with little experience on the average or median salary is to examine the number of new teachers - particularly those directly from teachers college - added to the stock each year. These data are shown in Table 15. At the elementary level, the number of new teachers as a percentage of the total stock increased steadily from 1948 to 1958, declined to 1961, rose again to 1966, and then fell by 1970 to about the same level at which it was at before the rapid enrolment growth began in the 1950s. It appears that the peaks in the percentage of new teachers coming directly from teachers college tend to lag the peaks in teacher acquisitions by a few years. For example, the 1958 peak in new acquisitions was followed in 1961 by a peak in the percentage of new graduates. This three-year lag is repeated in the 1966 and 1967 acquisition

TABLE 15

Annual Teacher Acquisitions, Ontario, 1946 to 1973
(data are for gross acquisitions, not net of withdrawals)

Year	Elementary		Secondary	
	Teacher Acquisitions, percentage of Total Stock	New Graduates as % of Acquis.	Teacher Acquisitions, percentage of Total Stock	New Graduates as % of Acquis.
1944-45				
1945-46				
1946-47	10.7		13.1	
1947-48	10.2		7.1	
1948-49	10.0		8.0	
1949-50	11.5		9.8	
1950-51	13.7		10.8	
1951-52	12.8		9.4	
1952-53	14.7		10.2	
1953-54	16.4		9.3	
1954-55	19.6		19.3	
1955-56	18.0		15.9	
1956-57	19.4		15.5	
1957-58	20.5		17.8	
1958-59	20.6	57	17.5	46
1959-60	18.7	65	17.6	55
1960-61	18.1	64	19.8	51
1961-62	16.5	73	24.8	42
1962-63	17.1	62	25.1	49
1963-64	17.7	52	21.4	62
1964-54	18.5	51	23.5	51
1965-66	20.7	48	23.3	52
1966-67	21.9	47	24.2	46
1967-68	21.6	47	22.6	55
1968-69	20.7	49	18.6	68
1969-70	17.3	67	15.8	49
1970-71	11.5	79	12.5	60
1971-72[e]	13.5	46	14.4	48
1972-73[e]	13.1	58	14.1	55
1973-74[e]	13.1	57	14.1	54

[e] projected

Source: Committee on the Costs of Education, Interim Report Number One, 1972.

peaks and the 1969 and 1970 new graduate peaks. Table 16 shows that this phenomenon is reflected in the sharp increase in enrolment for elementary teacher training in 1958 and 1959 and again in 1968. These were also years of large increases in salaries for female public school teachers, suggesting that the supply response is about as prompt as was hypothesized in the introductory analytical framework.

The number of secondary teacher acquisitions reflects in part the irregular increases seen earlier in the total numbers of secondary teachers. From 1956 to 1962, however, there was a fairly steady increase in the proportion of new teachers, and then an almost as steady decrease. The relationship between total acquisitions and new graduates is not as strong - even with a lag - as it was for the elementary teachers. Moreover, the most rapid increases in faculty of education enrolments occurred in 1968 to 1970; this was long after the 1962 peak in relative numbers of new teachers and at the end of the mid-1960s growth period. More significantly, the rapid increase in teacher training enrolments occurred just when secondary teachers (along with other teachers) had a sharp salary increase, as was seen previously in Figure 4. Again the supply of teachers (or potential supply) seems to react immediately and substantially to salary increases.

One should recall, however, that increases in median salaries are not necessarily the same as across-the-board increases in salary scales; the former are used only as a convenient proxy for or indicator of the latter.

Demand for Teachers

The major factor in the demand for teachers is clearly the

TABLE 16

Enrolments in Teacher Education Institutions, Ontario, 1945 to 1971

			Annual Percentage Increase	
Year	Elementary	Secondary	Elementary	Secondary
1944-45				
1945-46	1019	289		
1946-47	1188	348	17	20
1947-48	1246	342	5	-2
1948-49	1260	456	1	33
1949-50	1481	427	18	-6
1950-51	1703	476	15	11
1951-52	1628	500	-4	5
1952-53	1873	439	15	-12
1953-54	1732	424	-8	-3
1954-55	2692	479	55	13
1955-56	3139	383	17	-20
1956-57	3442	348	10	-9
1957-58	3647	312	6	-10
1958-59	4688	433	29	39
1959-60	5951	525	27	21
1960-61	6730	598	13	14
1961-62	6058	910	-10	52
1962-63	5514	847	-9	-7
1963-64	6410	719	16	-15
1964-65	6462	816	1	13
1965-66	5913	937	-8	15
1966-67	6534	990	11	6
1967-68	6853	1195	5	21
1968-69	9277	1922	35	61
1969-70	7896	2979	-15	55
1970-71	7571	2790	-4	94
1971-72	4250	3197	-44	15

Source: Committee on the Costs of Education, Interim Report Number One, 1972.

number of children of school age since these determine the number of potential school enrolments. Table 17 traces the enrolments in elementary and secondary schools through the past century. These data show that the current phenomenon of "Declining School Enrolments in Ontario" is not historically unique. Such declines have occurred in three major periods prior to the 1970s: in or around 1884-85; at the turn of the century (1895 to 1905); and during the Depression through to the end of World War II. In the enrolment decline of the mid-1880s there apparently was no decrease in the total numbers of teachers; the number of male teachers did drop, but this was more than offset by an increase in female teachers.

During the longer period of enrolment decline at the turn of the century there was a slight decline in the number of teachers. This may explain why teachers' salaries were seen (in Table 6) to increase somewhat more rapidly in 1901 to 1913 than did average wages in the economy. That is, this was a period of salary increases as teacher demand increased again, following the slump in demand for teachers around 1900.

The declining enrolments of the 1930s and 1940s also appear to have been accompanied by only a very slight drop in the total numbers of teachers. Again, it was a time when a decline in male teachers was offset by an increase in the number of female teachers - but in this case due to wartime demands for military service. Not only was there no significant decrease in numbers of teachers in this period, but neither did their relative salaries appear to drop in the initial stages of the decline. By 1937, however, the general wage rate had increased while teachers' absolute as well as relative salaries fell slightly. This effect continued through to the end of the 1940s. As Figure 3 illustrated earlier, it was not until 1948-49 that teachers'

TABLE 17

Enrolments and Teachers in Publicly Controlled Schools, Ontario, 1870 to 1975

Year	Enrolment ('000)			Teachers ('000)		
	Total	Elementary	Secondary	Total	Males	Females
1869-70	433.3	351.2	--	5.2	2.8	2.4
1874-65	490.0	465.5	24.5	5.4	2.6	2.8
1879-80	496.0	467.9	28.0	7.4	3.3	4.1
1884-85	486.7	463.3	23.4	8.0	2.7	5.3
1889-90	516.0	484.2	31.8	9.2	2.7	6.5
1894-95	518.7	476.1	42.6	10.2	2.8	7.4
1899-00	495.5	456.3	39.2	10.8	2.6	8.2
1904-05	487.6	442.7	45.0	10.6	2.5	8.1
1909-10	510.7	464.0	46.7	11.7	2.2	9.5
1914-15	571.4	516.5	52.5	13.5	2.3	11.2
1919-20	--	558.8	--	15.3	2.2	13.1
1924-25	658.9	574.5	82.5	18.0	3.1	14.9
1929-30	706.4	606.9	98.6	20.1	4.0	16.1
1934-35	678.2	552.6	118.9	21.4	5.5	15.9
1939-40	663.7	527.7	127.3	22.0	6.5	15.5
1944-45	651.0	525.0	118.4	21.8	4.8	17.0
1949-50	745.3	604.1	134.8	25.1	7.4	17.7
1954-55	979.6	803.6	169.0	33.0	10.0	23.0
1959-60	1319.2	1081.6	237.6	45.4	14.4	30.9
1964-65	1673.8	1278.5	395.3	64.1	25.0	39.1
1969-70	1986.8	1456.1	530.7	89.9	36.0	53.8
1974-75	1994.5	1404.8	589.7	94.2	42.0	52.2

Sources: M.C. Urquhart and K. Buckley, Historical Statistics of Canada; Ontario Statistics, 1976, Table 6.7; and Statistics Canada, no. 81-202.

salaries began to improve relative to average incomes in the total labour force.

Calculations based on data on enrolments and teachers in Table 17 would show that there was a sharp decline in the pupil-teacher ratio from 91 in 1875 to 46 in 1900. Through the next 25 years the ratio dropped further to reach 37 in 1925, and then 32 in 1935. The pupil-teacher ratio remained at about 30 from 1935 to 1965 and then declined sharply to about 20 in 1975.

Table 21 will show later, however, that this was due largely to the secondary schools where there was a lower ratio initially, a sharper decline in the ratio, and an increasing proportion of the total enrolment in the secondary schools.

One may object that the enrolment data presented here omit the enrolments in private schools. Table 18 shows that this is not a serious objection: although private school enrolments have increased steadily since 1944 they still represent less than three percent of the total enrolments.

Annual data on enrolments by school category from 1946 to 1975 are presented in Table 19. These provide the basis for the annual percentage changes in enrolments which appear in Table 20 and are plotted in the upper section of Figure 5. From this graph it can be seen that the phenomenon of declining enrolments had its beginning, in one sense, in 1953 for elementary schools and in 1962 for secondary schools since those were the years following the largest annual increases, occurring in the postwar period.

The pupil-teacher ratios (PTR) shown in Table 21 are also plotted in Figure 5. These show that the PTR in elementary schools began to decline in 1954. This decrease occurred gradually

TABLE 18

Total Enrolments in Publicly Controlled Schools and Private Schools, Ontario, five year intervals, 1924 to 1974
(thousands)

Year	Public	Private	Total	Percentage Private
1924-25	658.9	10.1	669.0	1.5
1929-30	706.4	12.2	718.6	1.7
1934-35	678.2	11.2	689.4	1.6
1939-40	663.7	13.5	677.2	2.0
1944-45	651.0	15.9	666.9	2.4
1949-50	745.3	18.8	764.3	2.5
1954-55	981.9	17.8	999.7	1.8
1959-60	1319.2	25.3	1344.5	1.9
1964-65	1673.8	44.5	1718.3	2.6
1969-70	1986.8	43.0	2029.8	2.1
1974-75	1994.5	51.2	2045.7	2.5

Sources: M.C. Urquhart and K. Buckley, Historical Statistics of Canada; and Ontario Statistics.

TABLE 19

Total Enrolments in Publicly Controlled Schools, Ontario, 1946 to 1975

(thousands)

Year	Public[a]	Separate[a]	Elementary[b]	Secondary	Total
1946-47	441.3	108.9	539.0	123.8	662.8
1947-48	453.1	111.4	550.0	123.1	673.1
1948-49	469.5	115.5	571.5	125.2	696.7
1949-50	493.5	122.7	592.7	127.3	720.0
1950-51	508.4	127.3	612.2	131.2	743.4
1951-52	544.5	134.1	654.5	133.6	788.1
1952-53	588.3	146.7	712.9	141.1	854.0
1953-54	620.4	162.7	768.4	148.7	917.1
1954-55	644.0	174.2	821.7	160.2	981.9
1955-56	676.2	187.4	863.6	174.6	1,038.2
1956-57	706.3	205.6	911.9	185.6	1,097.5
1957-58	747.2	223.9	971.1	203.5	1,174.6
1958-59	784.2	243.4	1,027.6	222.1	1,249.7
1959-60	817.9	263.8	1,081.6	237.6	1,319.2
1960-61	843.7	282.7	1,126.4	262.8	1,389.2
1961-62	861.7	301.3	1,163.1	299.2	1,462.2
1962-63	880.2	316.8	1,197.0	331.6	1,528.6
1963-64	901.8	331.3	1,233.2	364.2	1,597.4
1964-65	925.1	353.4	1,278.5	395.3	1,673.8
1965-66	949.4	370.7	1,320.0	418.7	1,738.8
1966-67	976.9	388.0	1,364.9	436.0	1,800.9
1967-68	1,002.6	402.5	1,405.1	463.7	1,868.8
1968-69	1,021.7	408.9	1,430.6	500.8	1,931.4
1969-70	1,042.6	413.6	1,456.1	530.7	1,986.8
1970-71	1,047.1	418.4	1,465.5	556.9	2,022.4
1971-72	1,034.7	422.1	1,456.8	574.5	2,031.4
1972-73	1,022.9	422.2	1,445.1	583.0	2,028.1
1973-74	998.7	424.2	1,422.9	585.7	2,008.6
1974-75	977.5	427.3	1,404.8	589.7	1,994.5
1975-76					1,994.6

[a] Net enrolment 1946-47 to 1954-55

[b] The total enrolment is gross enrolment. Consequently, the Total Enrolment for each of the years 1946-47 to 1954-55 is different from the sum of the net enrolments for Public Schools and Roman Catholic Separate Schools.

Sources: Committee on the Costs of Education, Interim Report Number Four, 1974, Table 34; and Ministry of Education, Education Statistics Ontario.

TABLE 20

Annual percentage increase in Enrolments in Publicly Controlled Schools, Ontario, 1947 to 1971

Year	Elementary		Total Elementary	Secondary	Total
	Public	Separate			
1947-48	2.7	2.3	2.0	-6.1	1.6
1948-49	3.6	3.7	3.9	1.7	1.4
1949-50	5.1	6.2	3.7	1.6	3.3
1950-51	3.0	3.7	3.3	3.1	3.3
1951-52	7.1	5.4	6.9	1.8	6.0
1952-53	8.1	9.4	8.9	5.6	8.4
1953-54	5.5	11.0	7.8	5.4	7.4
1954-55	3.8	7.0	6.9	7.7	7.1
1955-56	5.0	7.6	5.1	9.0	5.7
1956-57	4.4	9.7	5.6	6.3	5.7
1957-58	5.8	8.9	6.5	9.7	7.0
1958-59	4.9	8.7	5.8	9.1	6.4
1959-60	4.3	8.4	5.3	7.0	5.6
1960-61	3.2	7.2	4.1	10.6	5.3
1961-62	2.1	6.6	3.3	13.8	5.3
1962-63	2.1	5.1	2.9	10.8	4.5
1963-64	2.5	4.6	3.0	9.8	4.5
1964-65	2.6	6.7	3.7	8.5	4.8
1965-66	2.6	4.9	3.3	5.9	3.9
1966-67	2.9	4.7	3.4	4.1	3.6
1967-68	2.6	3.7	2.9	6.3	3.8
1968-69	1.9	1.6	1.8	8.0	3.3
1969-70	2.0	1.1	1.8	6.0	2.9
1970-71	0.4	1.2	0.6	4.9	1.8
1971-72	-1.2	0.9	-0.6	3.2	0.4
1972-73	-1.1	0.0	-0.8	1.5	-0.2
1973-74	-2.4	0.5	-1.5	0.5	-1.0
1974-75	-2.1	0.7	-1.3	0.7	-0.7
1975-76					0.0

Source: Table 19

TABLE 21

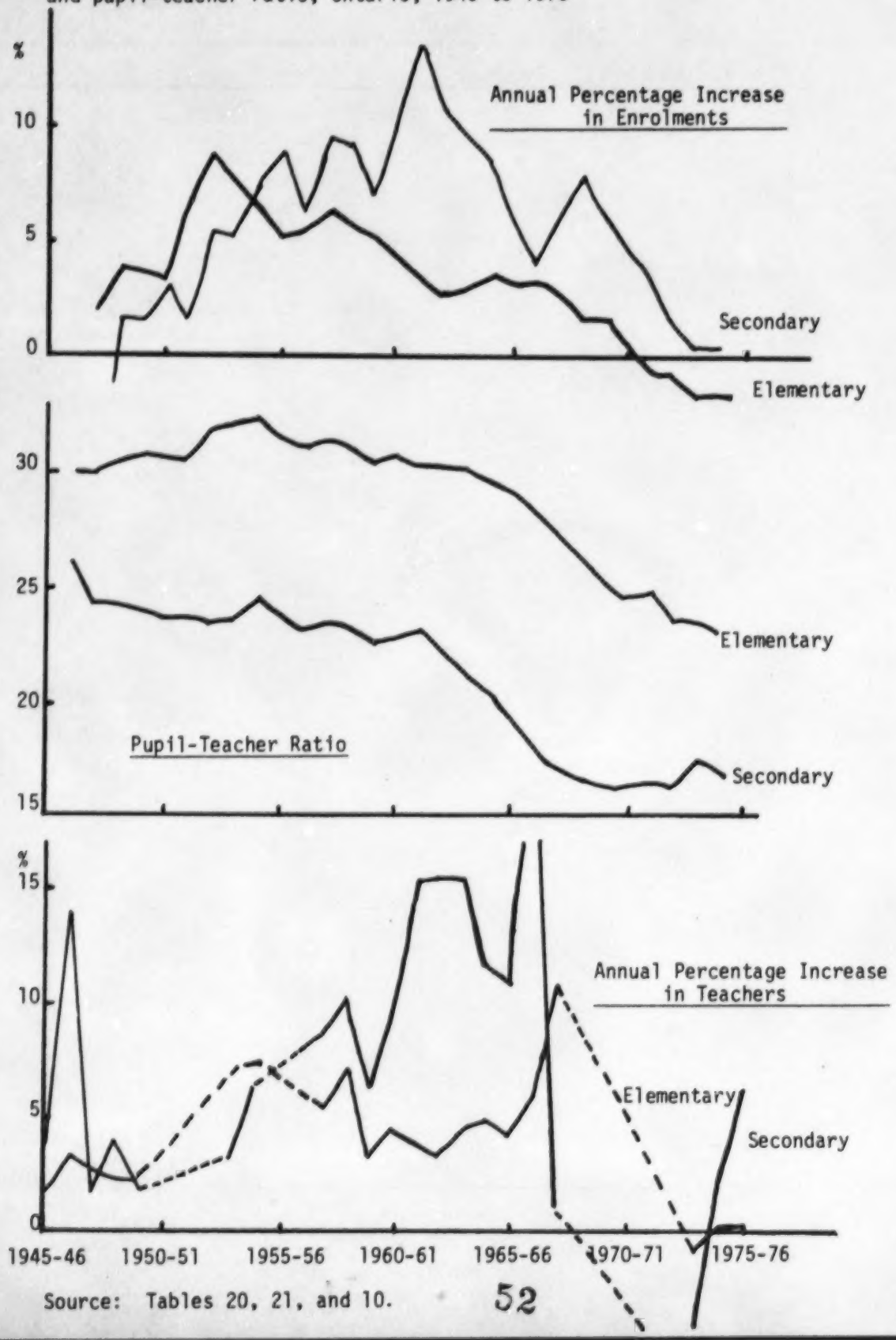
Pupil-Teacher Ratios in Ontario Schools, 1946 to 1975

Year	Public	Separate	Elementary	Secondary
1946-47			30.0	26.1
1947-48			30.0	24.4
1948-49			30.6	24.1
1949-50			30.9	24.0
1950-51			30.5	23.8
1951-52			30.8	23.8
1952-53			31.9	23.5
1953-54			32.3	23.7
1954-55			32.4	24.7
1955-56			31.4	23.7
1956-57			31.1	23.1
1957-58			31.5	23.5
1958-59	30.5	33.2	31.1	23.2
1959-60	30.0	33.1	30.7	22.7
1960-61	30.1	33.4	30.8	22.9
1961-62	29.8	32.9	30.5	23.3
1962-63	29.8	32.6	30.5	22.2
1963-64	29.6	31.9	30.2	21.2
1964-65	29.4	31.4	29.9	20.6
1965-66	29.0	30.4	29.4	19.3
1966-67	28.3	29.5	28.6	18.0
1967-68	27.3	28.2	27.5	17.1
1968-69	26.0	26.7	26.2	16.6
1969-70	25.2	25.5	25.3	16.4
1970-71	24.7	24.8	24.7	16.5
1971-72	24.9	25.2	25.0	16.7
1972-73			23.8	16.4
1973-74			23.7	17.7
1974-75			23.3	17.3
1975-76				

Sources: Cicely Watson, et al, The Elementary Teacher, Table 7; and Committee on the Costs of Education, Interim Report Number One, Tables 1 and 2, and Tables 10 and 19.

Figure 5

Annual percentage increases in enrolments and numbers of teachers, and pupil-teacher ratio, Ontario, 1945 to 1975



Source: Tables 20, 21, and 10.

in 1957 through 1964, but then accelerated with larger increases in teachers in 1965 and 1966 together with smaller increases in the number of pupils. It was also at this time that there were larger percentage increases in teachers' salaries. (See Figure 4, p. 26.)

The PTR in secondary schools began its sharpest decline in 1961, when enrolment increases were also diminishing; but the secondary PTR continued to decline right through the period in 1966 and 1967 when enrolment increased more quickly. This was also a time for larger increases in secondary teachers' salaries.

In summary, a comparison of Figures 3, 4 and 5 clearly illustrates the major change in educational policy that was occurring in the mid- to late-1960s. With school enrolments growing at a slower rate, the numbers of teachers were increased substantially in 1966 and 1967 and the pupil-teacher ratio continued to decline. This was accompanied by a sharp increase in teachers' salaries which brought elementary school teachers to a higher salary, relative to the rest of the labour force, than they had enjoyed in the entire postwar period. Similar salary increases at the secondary level brought those teachers back to the relative position they held a decade earlier, although this was still below the high relative position they had attained in 1958-59.

BIBLIOGRAPHY

Benson, Chas. S. The Economics of Education. Boston: Houghton, Mifflin, 1961.

Blank, D.S. and G.J. Stigler. The Demand and Supply of Scientific Personnel. New York: National Bureau of Economic Research, 1957.

Bowman, M.J. "Educational Shortage and Excess," Canadian Journal of Economics and Political Science, Vol. 29 (November 1963), pp. 446-61.

Cameron, David M. Schools for Ontario. Toronto: University of Toronto Press, 1972.

Canadian Teachers Federation. Trends in the Economic Status of Teachers, 1910-1955. Ottawa, 1957.

Canadian Teachers Federation. Teachers Salaries: Trends and Comparisons. Ottawa, 1964.

Cohn, E. The Economics of Education. Lexington, Mass.: Lexington Books, 1972.

Cullity, John P. "The Growth of Educational Employment in Three Countries, 1895-1964," Journal of Human Resources, Vol. IV, No. 1 (Winter 1969), pp. 84-92.

Freeman, Richard B. The Over-educated American. New York: Harcourt, Brace, Jovanovich Academic Press, 1976.

Freeman, Richard B. The Market for College-Trained Manpower. Cambridge, Mass.: Harvard University Press, 1971.

Froomkin, Joseph, et al. Population, Enrollment, and Costs of Public Elementary and Secondary Education, 1975-76 and 1980-81. Washington, D.C.: President's Commission on School Finance, 1971.

Green, Shirley. Occupational Trends in Ontario, 1931 to 1961. Toronto: Ontario Department of Labour, 1967.

Gustman, Alan L. and George B. Pidot, Jr. "Interactions Between Educational Spending and Student Enrollment," Journal of Human Resources, Vol. VIII, No. 1 (Winter 1973), pp. 3-23.

Hansen, W.L. "Educational Plans and Teacher Supply," Comparative Educational Review, October 1962, pp. 136-41.

Hirsch, W.Z. "Determinants of Public Education Expenditures," National Tax Journal, Vol. XIII, No. 1 (March 1960), pp. 29-40.

Kasper, H. "The Effect of Collective Bargaining on Public School Teachers' Salaries," Industrial and Labour Relations Review, Vol. 24, No. 1 (October 1970), pp. 57-72.

Kershaw, J.A. and R.N. McKean. Teacher Shortages and Salary Schedules. New York: McGraw-Hill, 1962.

Lydall, H. The Structure of Earnings. Oxford: Clarendon, 1968.

Manitoba Teachers' Society. Report of the Task Force on Declining Enrolments. Winnipeg, 1975.

Meltz, Noah. Manpower in Canada, 1931-1961. Ottawa: Department of Manpower and Immigration, 1969.

Meltz, Noah and David Stager. The Occupational Structure of Earnings in Canada, 1931-1975. Ottawa: Department of Supply and Services (forthcoming).

National Educational Association (U.S.A.). Economic Status of Teachers.

Ontario. Committee on the Costs of Education. Report on the Education of Elementary and Secondary Teachers in Ontario: Facilities, Organization, Administration. (Interim Report No. 1) February 1972.

Ontario. Committee on the Costs of Education. Planning and Demographic Influences on School Enrolment. (Interim Report No. 4) February 1974.

Ontario. Committee on the Costs of Education. Compensation in Elementary and Secondary Education. (Interim Report No. 6) October 1976.

Royal Commission on Education in Ontario. Report. Toronto, 1950.

Revenue Canada. Taxation Statistics, annual.

Rodekohr, M. "The Effects of Declining Growth Rates on Resource Allocation in American Education Systems," unpublished Ph.D. dissertation, University of Colorado, 1974.

Routh, Guy. Occupation and Pay in Great Britain, 1906-60. Cambridge: Cambridge University Press, 1965.

Ruml, Beardsley and Sidney G. Tickton. Teaching Salaries Then and Now. New York: Fund for the Advancement of Education, 1955.

Sackley, Arthur. "Long-Term Trends in Urban Teachers Compensation," Monthly Labour Review, November 1966, pp. 1223-1235.

Scitovsky, Tibor. "The Trend of Professional Earnings," American Economic Review, Vol. LVI, No. 1 (March 1966), pp. 25-42.

Selby-Smith, C. and M. Skolnik. Concerning the Growth of Provincial Expenditure on Education in Ontario, 1938-1966. Toronto: Ontario Institute for Studies in Education, 1969.

Sheehan, John. The Economics of Education. London: Allen and Unwin, 1973.

Stigler, G.J. Employment and Compensation in Education. 1950.

Tickton, Sidney G. Teaching Salaries Then and Now - A Second Look. New York: Fund for the Advancement of Education, 1961.

Tracz, G.S. and W.A. Burtrigh. Teacher Cost Models. Toronto: Ontario Institute for Studies in Education, 1972.

Urquhart, M.C. and K. Buckley. Historical Statistics of Canada. Toronto: Macmillan, 1965.

Vaizey, John. The Economics of Education. New York: Free Press of Glencoe, 1962.

Watson, C., S. Quazi and R. Jones. The Elementary Teacher, A study of the characteristics and supply/demand relations of Ontario teachers. Toronto: Ontario Institute for Studies in Education, 1972.